

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

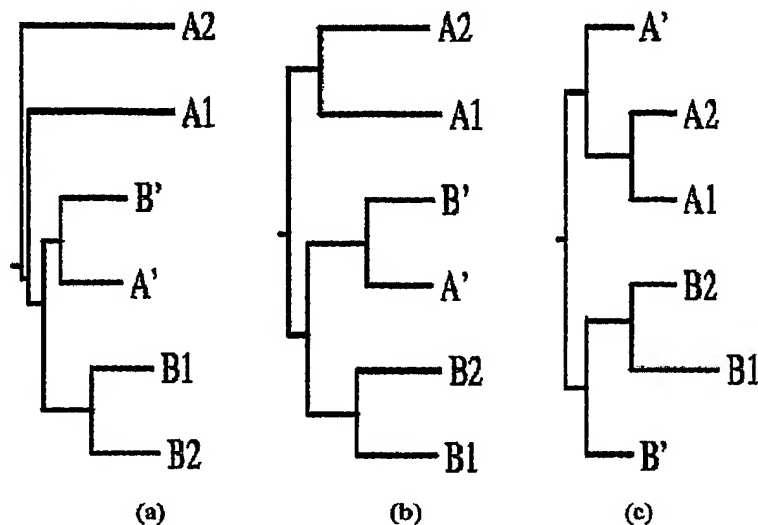
PCT

(10) International Publication Number
WO 2004/113505 A2

- (51) International Patent Classification⁷: **C12N** Boston, MA 02467 (US). **HINRICHS, Steven, H.** [US/US]; 3306 Armbrust Drive, Omaha, NE 68124 (US).
- (21) International Application Number: PCT/US2004/019762 (74) Agents: **DICKMAN, Jean, M.** et al.; Shook, Hardy & Bacon, 2555 Grand Blvd., Kansas City, MO 64108-2613 (US).
- (22) International Filing Date: 21 June 2004 (21.06.2004)
- (25) Filing Language: English (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (26) Publication Language: English (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
- (30) Priority Data: 60/479,668 19 June 2003 (19.06.2003) US
- (71) Applicant (for all designated States except US): **BOARD OF REGENTS OF UNIVERSITY OF NEBRASKA** [US/US]; Varner Hall, 3835 Holdredge Street, Lincoln, NE 68583 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SAYOOD, Khalid** [US/US]; 4524 Eagle Ridge Road, Lincoln, NE 68516 (US). **OTU, Hasan, H.** [TR/US]; 547 VFW Parkway,

[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR SEQUENCE DISTANCE MEASURE FOR PHYLOGENETIC TREE CONSTRUCTION



(57) Abstract: The present invention permits identification of biological materials following recovery of DNA using standard techniques by comparing a mathematical characterization of the unknown sequence with the mathematical characterization of DNA sequences of known genera and species. The clinical identification of infectious organisms is required for accurate diagnosis and selection of antimicrobial therapeutics. The invention allows an *ab initio* approach with the potential for rapid identification of biological materials of unknown origin. The approach provides for identification and classification of emergent or new organisms without previous phenotypic identification. The technique may also be used in monitoring situations where the need exists for classification of material into broad categories of bacteria which could have an immediate impact on bio-terrorism prevention.



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *without international search report and to be republished upon receipt of that report*